

BASIS FOR THE AMENDMENT

Claims 1-10 are active in the present application. Independent Claim 1 now states that the binder resin composition includes a chlorinated propylenic random copolymer having a Mw/Mn of less than 2. Support for the amendment is found on page 15, line 1.

Independent Claim 1 is further amended to state that the chlorinated propylenic random copolymer is an isotactic polymer. Support for the amendment is found in the Examples. For example, the specification discloses that "Wintech" polymers may be used in the invention (see page 4, lines 18-22). The Examples disclose an embodiment that includes a Wintech polymer (see Example 2 on page 16 of the specification).

Applicants submit that Wintech polymers are recognized by those of skill in the art as isotactic polymers. Applicants attach a technical publication describing Wintech polymers (see The Society of Polymer Science Japan, vol. 53, no. 633, 2004 (pp. 796-798)). A partial translation of the aforementioned publication follows:

Top of publication, page 796, lines 1-3:

We have put "Wintech" to a practical use, which has become first in the world as the random copolymer by metallocene catalyst.

Left column, page 796, lines 16-19:

Nihon Polypro Company have first succeeded in the industrialization of isotactic propylene-ethylene random copolymer (hereinafter abbreviated M-RCP) by metallocene catalyst in the world. This M-RCP is on sale in the trademark of "Wintech".

Applicants thus submit that the amendment to state the polymer is an isotactic polymer adds no new matter because the original specification discloses the use of an isotactic polypropylene as the polymer of the invention. Independent Claim 1, and the claims dependent therefrom, are further amended for matters of form and for clarity not affecting claim scope. No new matter is believed to have been added by this amendment.

REQUEST FOR RECONSIDERATION

The present claims are drawn to compositions that contain an isotactic propylenic random copolymer produced using a metallocene catalyst. Applicants have disclosed that a binder resin composition that includes a chlorinated form of the isotactic propylenic random copolymer of the invention provides improved adherence to substrates. This feature of the invention is described on page 14, line 14 through page 15, line 23, reproduced below for convenience (underlining added):

One of the features of the propylenic random copolymer produced by using metallocene catalyst as a polymerization catalyst is that it has a lower melting point·glass transition point than that of the propylenic random copolymer produced by using conventional Ziegler-Natta catalyst as a polymerization catalyst. It is considered therefore that, even if making the chlorine content low, the solvent solubility is good, and additionally, due to lower melting point, the adherence at the time of low-temperature baking becomes good.

Moreover, it is mentioned that, as a feature of the propylenic random copolymer produced by using metallocene catalyst as a polymerization catalyst, the molecular weight distribution is very narrow ($M_w/M_n = \text{ca. } 2 \text{ or less}$).

Furthermore, it has also newly become clear that, in the case of the propylenic random copolymer produced by using conventional Ziegler-Natta catalyst as a polymerization catalyst, decrease in the molecular weight, that is, formation of low-molecular weight components is caused inevitably, but, in the case of the propylenic random copolymer produced by using metallocene catalyst as a polymerization catalyst, formation thereof is little, because organic peroxide etc. are used when graft copolymerizing α,β -unsaturated carboxylic acid or its anhydride.

In the invention, although no distinct reason is seen, it has been found that, different from the propylenic random copolymer produced by using conventional Ziegler-Natta catalyst as a polymerization catalyst, the propylenic random copolymer produced by using metallocene catalyst as a polymerization catalyst exhibits excellent adherence onto wide range of prime materials such as poly(vinyl chloride), polycarbonate, PET, ABS and nylon, besides polyolefinic prime materials. Moreover, it is considered that, by using the

propylenic random copolymer with less low-molecular weight components, produced by using metallocene catalyst as a polymerization catalyst, the gasohol resistance became good.

In contrast to a propylenic resin made with a catalyst other than a metallocene catalyst, the chlorinated isotactic propylenic random copolymer of the present claims has a molecular weight distribution that is less than 2. The advantage obtained by using a chlorinated isotactic propylenic random copolymer having a molecular weight distribution of less than 2 is reflected in the table of results provided on page 27 of the specification. Each of Examples 1-4 described in the original specification is an inventive example. It is readily evident from the data of Table 3 of the specification (reproduced below for convenience) that the inventive examples (i.e., examples having a chlorinated isotactic propylenic random copolymer with a Mw/Mn of less than 2) are able to provide substantially increased heat seal strength.

Table 3 Results of adhesiveness test

	Heat seal strength (g/cm)		
	PP prime material	PVC prime material	PET prime material
Ex.1-1	860	830	830
-2	780	770	750
-3	690	710	650
Ex.2-1	900	820	780
-2	880	700	750
-3	730	680	660
Ex.3-1	1200	1050	1100
-2	1000	1000	1050
-3	850	920	900
Ex.4-1	1300	1350	1400
-2	1100	1200	1380
-3	900	1140	1220
Comp.1-1	-	-	-
-2	500	30	0
-3	400	0	0
Comp.2-1	600	200	50
-2	500	100	30
-3	350	0	0
Comp.3-1	-	-	-
-2	700	50	0
-3	600	0	0
Comp.4-1	1000	30	10
-2	800	10	0
-3	650	0	0
Comp.5-1	780	400	300
-2	680	200	280
-3	600	180	100

Note: With Comparative example 1-1 and Comparative example 3-1, the tests could not be carried out, since the resin solutions immediately after production were pudding-like. Boxed cells are inventive.

Like the improved heat seal strength noted in Table 3 on page 27 of the specification, Applicants have also disclosed that the binder resin composition of the present claims can provide improved peeling performance on a variety of substrates. Table 4 appearing on page 28 of the specification shows the improved peeling performance and is reproduced below for convenience.

Table 4 Results of ink test

	Peeling with adhesive tape			Heat seal strength (g/cm)		
	PP prime material	PVC prime material	PET prime material	PP prime material	PVC prime material	PET prime material
Ex.1-1	Good	Good	Good	650	680	630
-2	Good	Good	Good	590	600	530
-3	Good	Good	Good	450	460	420
Ex.2-1	Good	Good	Good	700	720	750
-2	Good	Good	Good	500	700	700
-3	Good	Good	Good	400	660	650
Ex.3-1	Good	Good	Good	900	1000	1050
-2	Good	Good	Good	850	940	980
-3	Good	Good	Good	700	880	950
Ex.4-1	Good	Good	Good	1000	1100	1200
-2	Good	Good	Good	920	1050	1100
-3	Good	Good	Good	780	1000	1150
Comp.1-1	-	-	-	-	-	-
-2	Good	No good	No good	400	0	0
-3	Good	No good	No good	320	0	0
Comp.2-1	Good	No good	No good	580	100	30
-2	Good	No good	No good	410	40	0
-3	Good	No good	No good	290	0	0
Comp.3-1	-	-	-	-	-	-
-2	Good	No good	No good	530	0	0
-3	Good	No good	No good	440	0	0
Comp.4-1	Good	No good	No good	680	0	0
-2	Good	No good	No good	510	0	0
-3	Good	No good	No good	450	0	0
Comp.5-1	Good	Good	Good	540	200	200
-2	Good	Good	Good	480	50	250
-3	No good	No good	No good	230	0	0

Note: With Comparative example 1-1 and Comparative example 3-1, the tests could not be carried out, since the resin solutions immediately after production were pudding-like. Boxed cells are inventive.

Applicants have therefore demonstrated that the chlorinated isotactic propylenic random copolymer of the present claims is able to provide a binder resin composition that is different from binder resin compositions that are made with generic polypropylene or polypropylene that is not made with a metallocene catalyst or otherwise does not have the molecular weight distribution recited in the present claims. Applicants submit that the data

discussed above satisfies any burden to show that the product-by-process limitation of the present claims describes a composition that is different from the prior art compositions.

As evidence that generic polypropylene copolymers do not inherently have a molecular weight distribution of less than 2, Applicants draw the Office's attention to the prior art cited by the Office, i.e., Urata (U.S. 6,586,525). Beginning at column 7, line 15, Urata discloses several prior art compositions that include different polypropylene and/or polypropylene copolymer-type materials. Each of the materials described in Urata has a molecular weight distribution that is greater than 2 and is therefore outside the requirement of the present claims which require that the molecular weight distribution must be less than 2 (see for example column 7, lines 60-63; column 8, lines 43-46; column 9, lines 16-19; column 9, lines 47-48; column 10, lines 11-14; column 10, lines 50-53; column 11, lines 4-6; column 11, lines 26-28; and column 11, lines 52-54 of Urata).

Applicants submit that the presently claimed subject matter must be novel in view of the cited prior art at least because Urata does not disclose a propylene-containing material having the molecular weight distribution of the chlorinated isotactic propylenic random copolymer of the present claims.

Applicants submit that the binder resin compositions of the present claims are significantly superior in comparison to binder resin compositions that include a polypropylene material such as a syndiotactic polypropylene instead of the isotactic propylenic random copolymer of the present claims. This is demonstrated by the data of the specification. As was mentioned above, the compositions containing isotactic propylenic random copolymer described in the present application have significantly improved heat seal strengths and adhesion characteristics. Each one of Examples 1-4 in Tables 3 and 4 above, provide significantly improved heat seal strength and resistance to peeling on a variety of substrates when compared to compositions that contain a syndiotactic polypropylene or an

atactic polypropylene produced using a Ziegler-Natta catalyst. As is readily evident from the description of the Inventive and Comparative Examples of the specification on pages 15-21 of the specification and the data of Tables 3 and 4 above, the binder resin composition of the invention, i.e., a binder resin composition containing an isotactic propylenic random copolymer, is able to provide significantly improved heat seal strength in comparison to binder resin compositions that contain a syndiotactic polypropylene or an atactic polypropylene made with a Ziegler-Natta catalyst.

Applicants thus submit that the chlorinated isotactic propylenic random copolymer of the present claims is different from the polypropylenic materials described in Urata. Applicants further submit that the claimed invention is not obvious in view of Urata and/or Ueda because Urata and Ueda do not disclose or suggest that a chlorinated isotactic propylenic random copolymer made using a metallocene catalyst can provide the improved heat seal and adherence properties of the resin binder composition of the present claims.

The Office asserted that Ueda (EP 1065245) anticipates the invention because Ueda discloses that the prior art polyolefin resin may include a propylene- α -olefin copolymer produced by using a metallocene catalyst (see paragraph [0011] of Ueda). The Office relied on paragraph [0013] as proof that the prior art metallocene catalyst may provide a desirable degree of random copolymerizability.

Applicants traverse the Office's assertion that Ueda discloses the presently claimed invention. As already mentioned above, present independent Claim 1 recites an "isotactic propylenic random copolymer". In contrast, the invention of Ueda is described as a composition that includes a syndiotactic polyolefin. For example, Ueda discloses (underlining added):

The polyolefin resin being raw material of the invention is a syndiotactic polyolefin produced by using the metallocene catalyst as a polymerization catalyst. It is possible to use

syndiotactic polypropylene (SPP), propylene- α -olefin copolymer produced using metallocene catalyst as a polymerization catalyst, or the like solely or by mixing two or more kinds.

At best, Ueda discloses a generic propylene- α -olefin copolymer or a syndiotactic propylene- α -olefin copolymer. Applicants submit that Ueda does not explicitly disclose the isotactic propylenic random copolymer of the present claims.

Applicants further submit that Ueda's disclosure of a genus of propylene- α -olefin copolymer produced by using metallocene catalysts does not anticipate the propylene random copolymer of the present claims.

Ueda's silence with respect to an isotactic propylenic random copolymer is reflected in the prior art examples. No propylenic random copolymer is disclosed in any of Examples 1-3 of Ueda. Instead, Ueda discloses that the prior art invention contains a syndiotactic polypropylene, but not the isotactic propylenic random copolymer made with a metallocene catalyst of the present claims.

Applicants demonstrated the importance of using a propylenic random copolymer in comparison to the non-random copolymers of the prior art in the Examples and Data of the specification. For example, Comparative Examples 1-3 of the specification show the consequences of using a polypropylene outside the present claims limitations. As was already discussed above, the claimed invention is able to provide significantly improved heat seal strength. Likewise, Comparative Example 1 of the specification is carried out in a manner similar to Inventive Example 2. However, a syndiotactic polypropylene is used. As shown by Tables 3 and 4 above, the syndiotactic polypropylene-based composition of Comparative Example 4 has significantly poorer heat seal strength than the isotactic propylenic random copolymer-based compositions of the present claims.

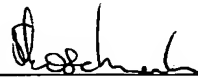
Applicants thus submit that the data of the original specification prove that the claimed composition is significantly superior to compositions that contain other types of polypropylene not falling within the scope of the present claims.

Applicants thus submit that (i) Ueda does not anticipate the present claims because Ueda does not disclose an isotactic propylenic random copolymer made by a metallocene catalyst, and (ii) the claimed invention is not obvious over Ueda in view of Applicants' data showing that the presently claimed composition provides significantly improved heat seal strength.

For the reasons discussed above, Applicants submit that all now-pending claims are in condition for allowance and respectfully request notification of the same.

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